The Engineering Resource For Advancing Mobility
400 COMMONWEALTH DRIVE, [illegible] 15008

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 4042F
Issued 11-1-41
Revised 10-1-81

ALUMINUM ALLOY SHEET AND PLATE, ALCLAD
4.5Cu - 1.5Mg - 0.60Mn (Alclad 2024-T36)
Width 48 in. and Under

This specification was declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of 3-25-74. It is recommended that this specification not be specified for new designs.

This cover sheet should be attached to the "F" revision of the subject specification.

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of 10-1-81. By this action, subject specification number and title will be deleted from the active specification index of Aerospace Material Specifications.

Society of Automotive Engineers, Inc.
400 COMMONWEALTH DRIVE, WARRENDALE, PA 15096

AEROSPACE MATERIAL SPECIFICATION

AMS 4042F

Issued 11-1-41
Revised 9-1-65

ALUMINUM ALLOY SHEET AND PLATE, ALCLAD
4.5Cu - 1.5Mg - 0.60Mn (Alclad 2024-T36)
Width 48 In. and Under

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotation and when acknowledging purchase orders.

2. FORM: Sheet and plate produced in widths 48 in. and under.

3. APPLICATION: Primarily for structural parts of good strength which are required to exhibit maximum corrosion resistance. This material, when re-solution heat treated by the user, may not have the tensile properties shown. Certain design and processing procedures may cause this material to be susceptible to stress corrosion cracking; ARP 823 recommends practices to minimize such conditions.

4. COMPOSITION:

	Core (2024)	min	max	Cladding (1230)	min	max
	Copper	3.8	4.9	Iron + Silicon	--	0.7
Ø	Magnesium	1.2	1.8	Copper	--	0.10
	Manganese	0.30	0.9	Zinc	--	0.10
	Iron	--	0.50	Manganese	--	0.05
	Silicon	--	0.50	Other Impurities, each	--	0.05
	Zinc	--	0.25	Aluminum, by difference	99.30	--
	Chromium	--	0.10			
	Other Impurities, each	--	0.05			
	Other Impurities, total	--	0.15			
	Aluminum	remainder				

Ø 5. CONDITION: Solution heat treated and cold reduced approximately 6% in thickness.

6. TECHNICAL REQUIREMENTS: The product shall conform to the following requirements; tensile properØ ties shall be determined in accordance with the latest issue of AMS 2355.

6.1 Cladding Thickness: After rolling, the average cladding thickness shall be as shown. Routine measurements are not required.

	Total Thickness of Composite Product Inch	Cladding Thickness Per Side % of Total Thickness min	max
	0.020 to 0.062, incl	4.0	--
Ø	Over 0.062 to 0.187, incl	2.0	--
	Over 0.187 to 0.500, excl	1.2	--
	0.500	1.2	3.0

6.2 Tensile Properties:

Ø Nominal Thickness Inch	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (See 6.2.1) psi, min	Extension Under Load in. in 2 in.	Elongation % in 2 in. or 4D, min
0.020 to 0.062, incl	62,000	48,000	0.0141	8
Over 0.062 to 0.187, incl	66,000	50,000	0.0140	9
Over 0.187 to 0.500, excl	67,000	51,000	0.0142	9
0.500	69,000	52,000	0.0139	10

6.2.1 Extension under load is based upon the following values of E:

Ø Nominal Thickness Inch	E
0.020 to 0.062, incl	9,500,000
Over 0.062 to 0.500, excl	10,000,000
0.500	10,500,000

6.2.2 When a dispute occurs between purchaser and vendor over the yield strength value, yield strength determined by the offset method shall apply.

6.3 Bending: Material shall be capable of withstanding, without cracking, bending at room temperature Ø through an angle of 180 deg around a diameter equal to the bend factor times the nominal thickness of the material, with axis of bend parallel to direction of rolling.

Nominal Thickness Inch	Bend Factor
0.020 to 0.062, incl	4
Over 0.062 to 0.187, incl	6
Over 0.187 to 0.249, incl	8

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

8. TOLERANCES: Unless otherwise specified, tolerances shall conform to all applicable requirements of the latest issue of AMS 2202.

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the chemical composition and technical requirements of this specification. This report shall include the purchase order number, material specification number, thickness, size, and quantity.

9.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.